MAKING WEIGHTY DECISIONS: DO PRE-SERVICE TEACHERS UNDERSTAND THE IMPACT OF DATA-DRIVEN DECISIONS?

A Senior Scholars Thesis

by

LAUREN ELIZABETH WILLIAMS

Submitted to the Office of Undergraduate Research
Texas A&M University
in partial fulfillment of the requirements for the designation as

UNDERGRADUATE RESEARCH SCHOLAR

April 2010

Major: Interdisciplinary Studies

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Associate Dean for Undergraduate Research: Robert C. Webb

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ABSTRACT

Making Weighty Decisions: Do Pre-Service Teachers Understand the Impact of Data-Driven Decisions? (April 2010)

Lauren Elizabeth Williams
Department of Educational Psychology
Texas A&M University

Research Advisor: Dr. Kimberly Vannest
Department of Educational Psychology

In an era of high accountability for student achievement and a mandate to use evidenced-based educational practices, the Institute of Education Sciences requires, effective methods for databased decision-making to be used.. In addition to becoming data collectors, managers, and analyzers, educators at all levels are assuming an ever-increasing role as researchers to evaluate the effectiveness of their instruction and contribute to the "what works" knowledge base. I will be studying pre-service teacher knowledge in databased decision making in relationship to the hours of training as measured by practicum hours in public school classrooms and university classroom instruction. Vannest, Reynolds & Kamphaus suggest in their Intervention Guide that students with emotional and behavioral disabilities (EBD) are in critical need of best practice or evidence based instruction, behavioral interventions, and classroom management strategies selected and implemented with teacher use of data-based decision making. Junior and senior level general and special education undergraduates will be surveyed to determine self reported knowledge and skill for collecting and using

data for informed instructional decision-making. These results will be evaluated using descriptive statistics and statistical significance testing with effect sizes and confidence intervals to see if there is a relationship between self-assessed knowledge and skills and hours spent in general and/or special education classrooms, junior or senior status, specific coursework and experience, familiarity via observation, and professional experience. The results show a low correlation between pre-service teachers actual and perceived abilities when it comes to using data to make informed instructional decisions for their students.

DEDICATION

I would like to dedicate this thesis to my grandmother, my Nana, Mary Anne Williams. I have been extremely fortunate in my life to have my Nana to show me unconditional love and support. The relationship and bond that I have with my Nana holds an enormous amount of meaning to me. I admire her for all of her accomplishments in life, for her independence, for her respected role in my family, and especially for the beautiful knowledge and wisdom that she has constantly instilled in my brother and I on a daily basis.

Nana, you have shaped me into the crazy, fun loving, determined and often hardheaded individual that I am today. It is because of you that I believe I can and will do the things I set my heart and mind to. I love you and thank you.

ACKNOWLEDGMENTS

I am forever thankful to my supervisor, Dr. Kimberly J. Vannest, whose encouragement, guidance and support from the initial to final level enabled me to develop an understanding of data based decisions. Her constant love and encouraging smile as well as late night hours will always be remembered.

I would like to show my gratitude to those with whom I have worked closely at Project D2K: Data to Knowledge. Special thank you's to Denise Soares, Dr. Judith Harrison, Dr. Richard Parker, Stacey Smith and Tara Payne. Each of you has had a beautiful impact on my life by teaching me that I can in fact do it if I decide that I can. It is wonderful to work with those who love and support you, drink coffee with you at all hours of the night in order to get your chapters submitted, and listen to you read and reread things just to make sure they sound right.

Specifically, I would like to thank Denise Soares who created this passion in me to love research. Denise, you believe in me and see potential in me that makes me want to be a better person. I could not ask for a better friend, mentor, and encouraging person in my life, thank you.

I would like to show my gratitude to Dr. Jay Woodward, Dr. Patricia Lynch, and Denise Soares for allowing me to distribute surveys to their undergraduate students to collect my results for this project.

Lastly, I offer my regards and blessings to all of those who supported me in any respect during the completion of the project, specifically my Special Education cohorts, Ashley Young, Katy Bogenschutz, and Jessica Betik, who encouraged me and supported me throughout this process.

NOMENCLATURE

ANOVA	Analysis of Variance
CEHD	College of Education and Human Development
IDEA	Individual with Disabilities Education Act
IDEIA	Individual with Disabilities Education Improvement Act
IES	Institute for Education Sciences
INST	Interdisciplinary Studies
NCLB	No Child Left Behind
SPED	Special Education
SEFB	Special Education Field Base
USDOE	United States Department of Education

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CHAPTER I

INTRODUCTION

In an era of high accountability for student achievement and a mandate to use evidenced-based educational practices (Institute of Education Sciences, 2003, December; "NCLB," 2001), effective methods for databased decision-making are needed. Teachers need a thorough understanding of data interpretation to select evidence based interventions and strategies in the educational and social context of high standards for academic achievement established by No Child Left Behind (2001) and the Individual with Disabilities Improvement Act of 2004. The language used in federal mandates appears to imply that teachers have the knowledge and skill to do this (Wayman, 2005). However, research is contradictory in this area. Bernhardt (2004) reported that educators and policymakers might not have the knowledge or skill to understand, interpret, and use data. Creighton (2001) stated that the lack of data interpretation and use by school administrators is founded on a lack of instruction in how to interpret this data. Means, Padilla, DeBarger, & Bakia (2009) reported the results of a study to evaluate the types of data collection systems in public schools, the usability of these systems for accessing and responding to the data, the existence of supports for school districts in using data to inform instruction, and school staff knowledge and use of data by school districts in a

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This thesis follows the style of the journal *Preventing School Failure.*

report published by the United States Department of Education Office of Planning, Evaluation, and Policy Department.

The impact of data on educational stakeholders

Teachers are taking on additional roles as data collectors, managers, and data analyzers. These new role expectations apply to educators at all levels and place teachers in an ever increasing role to evaluate the effectiveness of their instruction and perhaps contribute to the "what works" knowledge base. Teachers are expected to know what data to collect, how to collect and summarize it, and how to use the data, to inform future instruction. This role complexity has been a persistent challenge in the field of Special Education (Washburn-Moses, 2009). The impacts of these requirements also contribute to time use. Studies have documented these small amounts of time left for teaching after all other responsibilities are accounted for (Vannest & Hagan-Burke, 2010; Vannest & Parker, 2009).

The effect is not just on teachers but students as well. Students who are at risk are in critical need of best practice or evidence based instruction, behavioral interventions, and classroom management strategies selected and implemented with teacher use of data-based decision making (Vannest, Reynolds & Kamphaus, 2009). Students who are at risk fall behind academically, socially, emotionally, and behaviorally (Gunter, Callicott, & Denny, 2004; Vannest, Harvey, & Mason, 2009). A valuable component of the

instruction and management of these students is the use of data based decision making by teachers (Gunter, Callicott, & Denny, 2004; Vannest & Parker, 2009). Research shows that if instructional plans at the state, county, district, school, classroom, and individual student levels are based on assessment information relevant to the desired learning outcomes, the probability of positive outcomes is increased (Witt, 2008). In addition, legislation and a focus on accountability in the schools provide additional incentive and mandate the need for this type of scientific teaching. (IDEA, 2004; NCLB, 2001).

How data can impact schools

Making decisions which are data-driven, rather than based on non-data factors, has been identified as one of the most appropriate and effective strategies for addressing student achievement problems, ensuring accountability, and demonstrating a reliance on proven educational strategies (Isaacs, 2003; Kroeger, 2000; Vannest, Reynolds, & Kamphaus, 2009). Data analysis is meaningless if it does not result in meaningful instructional change. The notion of using data to make curriculum choices is an effective strategy for closing the achievement gap.

Teachers and schools who chose instructional interventions based on standards and information attained from comparative data nearly closed or eliminated the achievement gap (Bell 2003). This same logic holds true for instructional choices. Instruction that is

strategically planned and structured, rather than random or based on teacher interest, results in higher learning outcomes. Data to assess and drive instruction in the Bell study was linked to stronger achievement gains for underrepresented groups.

The literature addressing modeling of instructional strategies, assessment methods, and other teaching practices in the university classroom draws clear connections to actual practice of pre-service teachers once they reach the classroom (Allinder, 2001; Kluth & Straut, 2003). Understanding data based decision- making begins at the pre-service instructional level. If our future teachers are to engage in data-driven decision-making, pre-service preparation classes need exposure and explicit modeling on how to collect and interpret data. Research evaluating the amount of knowledge gained by pre-service teachers from university coursework and field experiences such as practicum and student teaching is lacking and needed to inform university program evaluation in data based decision making.

This study specifically aimed to examine pre-service teacher's knowledge of data-based decision making in relationship to the hours of training as measured by practicum hours and university classroom instruction. Surveys of junior and senior level general and special education undergraduates gave researchers an idea of self reported knowledge and skill for collecting and using data to inform instructional decision making. These results were evaluated using descriptive statistics and statistical significance testing with effect sizes and confidence intervals to determine if a relationship between self-assessed

knowledge and skills and hours spent in general and/or special education classrooms, junior or senior status, specific coursework, and experience, familiarity via observations, and professional experience exists. Researchers assume that student success outcomes differ depending on how informed, comfortable, and accurate teachers were with using student data to make instructional decisions.

CHAPTER II

METHODS

This study examined pre-service teacher's ability to make informed decisions based on student data using visual analysis. Visual analysis is a form of analysis that utilizes graphs to determine an intervention's success. This study provides descriptive data on the self-reported abilities of pre-service teachers. Results highlight the need for development efforts that address dispositions toward data-driven decision-making as well as the explicit teaching of technical knowledge and skills in pre-service teacher education programs.

Participants and settings

This study surveyed 110 participants consisting of sophomore, junior, and senior level undergraduate students in General and Special Education teacher preparation programs at Texas A & M University. Of these 110 surveys, 105 students submitted useable surveys. All students surveyed are enrolled in the College of Education and Human Development. Initial contact was made to five university professors via email and through face-to-face meetings. These professors were included based on a sample of convenience. and were part of the College of Education and Human Development Department (CEHD). Three professors agreed to have their students participate in the survey. Table 1 contains the participant demographics. All survey participants were between the ages of 18-22. Of the 105 participants 96 females and 9 males were

surveyed. There were 85 Caucasian/non Hispanic participants, 2 African Americans, 14 Hispanics, 1 of Asian descent, 2 others, and 1 participant who did not wish to disclose ethnic information. Twenty-two university sophomores, 25 juniors and 55 seniors, and 3 did not disclose university level.

Table 1. Participant Demographics

Participant Information		
		# of Participants
Ethnicity	Caucasian/Non Hispanic	85
	African American	2
	Hispanic	14
	Asian/Pacific Islander	1
	Other	2
	Did Not Wish to Disclose	1
University Level	Sophomores	22
	Juniors	25
	Seniors	55
	Not Applicable	3
	Did Not Wish to Disclose	3
Gender	Females	96
	Males	9

The three classes consisted of students whose classroom experience varied from taking 0 classes in Special Education up to 12 classes relating to Special Education. The course objectives varied among the participating classes.

One class, Education and Employment Issues in Secondary Special Education, SEFB 320, concentrates on the psychological, social, physical and cognitive development of secondary-age students. Students also learn about career assessment and programmatic options within educational and employment settings for students with special needs. Transition models from school settings to adult employment are also learned in this course. Another class, Students with Emotional and Behavioral Disorders, SEFB 442, focuses on special techniques and materials used in the instruction of students who have emotional and behavioral disorders. This course requires field-based experience hours that include practica related assignments relating to behavior and instructional interventions. Educational Psychology, INST 301, taught the application of psychology to problems of teaching, nature, and operation of principles of learning, transfer of training, and nature, measurement, and significance of individual differences.

The aforementioned courses are required in the College of Education and Human Development core curriculum plan. According to US News and World Report (2009), CEHD ranked 47th among all professional schools of education and 34th among all public professional schools. Texas A & M University has many degree programs that are among the top ten in the country and is the 3rd largest institution in the country. It is a

research-intensive flagship university with over 38 thousand undergraduates and over 9 thousand graduate students. It is also one of a select few universities with a land-grant, sea-grant, and space-grant designations.

Survey instrument

Participants in the study were administered a paper based survey consisting of 39 questions. There were 3 parts to the survey. The first section consisted of a demographic sheet where participants disclosed current student status, gender, ethnicity, and primary experience within the school setting. Participants were also asked to determine how many courses they have taken where at least 75% of the content was related to Special Education or students with disabilities. This was presented in a multiple-choice format. The second section consisted of Likert scale items where participants were to examine themselves and their abilities with 13 evaluation questions of self-efficacy of data collection and interpretation. Participants were asked to circle their responses from 5 being high or agreeing to 1 meaning low or disagreeing.

In the third portion of the survey, 5 line graphs with 4 questions per graph were presented. The first question asked if change occurred from one phase to the next by looking at the graph alone. Participants answered on a dichotomous scale of yes or no. The second question asked how large or small the change was if it occurred on a multi-categorical scale of small, medium, and large. The third question elicited a dichotomous

yes/no response by asking if there was a trend in the intervention phase of the data. Lastly, participants were asked if they would "vote" to continue or discontinue the treatment with two answer choices of continue/discontinue.

The survey questions were created by a research team comprised of the undergraduate researcher, the advisor and one doctoral student Questions were developed to obtain demographic information and assess teachers' ability to read and interpret a graph. The 5 graphs came from published research and represented real student data in classrooms. The graph's AB design consisted of baseline data and intervention data. The baseline data points ranged from 7-12 with different levels of variability. The intervention data phase points ranged from 4-21 with different levels of variability.

The surveys were administered in classes on campus at Texas A&M University in the Fall 2009 and took approximately 20 minutes for participants to complete. The participating university professors gave participants class time to complete the survey, and students were given the option not to participate.

Procedures

The 5 faculty members were contacted via email and in person with regards to this survey for their classes. Two professors declined to have their classes participate in the study. For the remaining three classes the principal investigator personally went to

present the research opportunity to the undergraduate classes. The participants were told that their participation was voluntary, responses were anonymous, and results would be analyzed as part of an undergraduate research study to determine pre-service teacher's abilities to make decisions based on student data. The survey was administered to the willing participants with the primary investigator standing at the front of the room. Data was then transported in a file folder and then entered into an excel spreadsheet for later analysis.

CHAPTER III

RESULTS

The purpose of this study was to examine the self-reported ability of pre-service teachers to make informed decisions based on student data using visual analysis. A survey of 110 sophomore, junior and senior undergraduate general and special education majors yielded 105 useable surveys of perceived ability and actual ability as measured by completing 5 visual analysis activities. Statistical analysis were used to determine if number of courses taken in Special Education, hours of experience in field work as defined by required coursework in university departments, or demographic variables such as gender or ethnicity resulted in differences in the ability do visual analysis of data.

Results of a factor analysis with a varimax rotation indicate 3 primary components after removing one item, which did not load well theoretically or numerically (Number 7: I think teaching is something you are natural at or not). Confidence intervals were used on the eignenvalues for a conservative loading of questions on components or "factors". The 3 factors are 1. Comfort with Data, 2. Level of self-reflection, and 3, Perceived ability. These factors were named after reviewing the 12 self-efficacy and opinion questions and naming the constructs (see table 2).

Questions 9-13 are grouped together as a factor titled "comfort with data". These questions asked participants to rank their self perceived abilities on questions containing

phrases such as “I feel” and “I trust”, etc. Comfort in making decisions based on data was addressed in each question. The second factor titled “Self-reflective” grouped questions 1-4 and 8 together. These questions asked participants to reflect on their own knowledge and judgments and evaluate these abilities in relations to student progress and data based decisions. Factor 3 addressed the “Perceived ability” of participants to be effective classroom teachers and data collectors. It also addressed participants comfort level with evaluating students. This factor included questions 3-6. Participants were asked to evaluate their comfort levels and abilities as well as familiarity with mathematics within this factor

The first factor analysis including all survey data returned 12 factors. After further analysis, isolating the 13 likert scale items and graphs 1-5, each consisting of 4 questions regarding ability to use data to make informed decisions was run resulting in 5 factors, a cut by more than half. It was then determined that running the analyses separately with the perceived abilities isolated would return better results. A factor analysis on the 13 self perceived ability questions returned 4 factors. Question 7 of the likert items was removed from the analysis because it loaded highly negative on 1 factor and did not theoretically make sense. This factor was also independent of the other factors in each analysis run.

Table 2. Questions and Components

Factors/Components	Questions (use number and type out question	Factor value
Factor 1: Comfort with Data		
	9. I trust "numbers" or data more than my own "sense" or judgment.	.713
	10. I feel comfortable taking data.	.675
	11. I use data now when I work with students.	.776
	12. I know what types of data to take and how to take it.	.836
	13. I know how to use data to make decisions.	.767
Factor 2: Level of Self-Reflection		
	1. Evaluate your ability to judge student progress using data.	.685

Table 2 Continued.

Factors/Components	Questions (use number and type out question	Factor value
	2. Evaluate your ability to make decisions about student progress in general.	.789
	3. Evaluate your comfort level using data.	.678
	4. Evaluate your comfort level in evaluating students in general.	.622
	8. I trust my own "sense" of how a student is doing.	.638
Factor 3: Perceived Ability		
	3. Evaluate your comfort level using data.	.411
	4. Evaluate your comfort level in evaluating students in general.	.418
	5. My ability to read graphs is…	.769
	6. I consider myself "a numbers person".	.686

Thirteen questions measured the self-reported ability of undergraduate students to use data to make decisions. A 1-5 likert scale with 5 categories indicating agrees to disagree. All questions were positively phrased with 65 points possible. A score of 65 indicates a perfect score and a very high ability pre- service teacher. A score of 52 indicated students who were high in ability; scores of 39 were average, a total score of 26 or below was a low-performer and 13 and below were very low. The distribution was positively skewed towards higher self-perceived abilities (See Figure 1). 64% of participants claimed that their abilities to make decisions based on data were high or very high, 31% claim they are average, while only 5% claim to be low or very low on these abilities (See Table 3).

Table 3. Summary of Self-rated Ability To Use Visual Analysis on Data

Self rated ability Score	Percentage of pre-service teachers (n)
Very high (100%-80%)	9% (9)
High (79%-60%)	55% (58)
Average (59%-40%)	31% (33)
Low (39%-20%)	5% (5)
Very low (19%-0%)	0% (0)

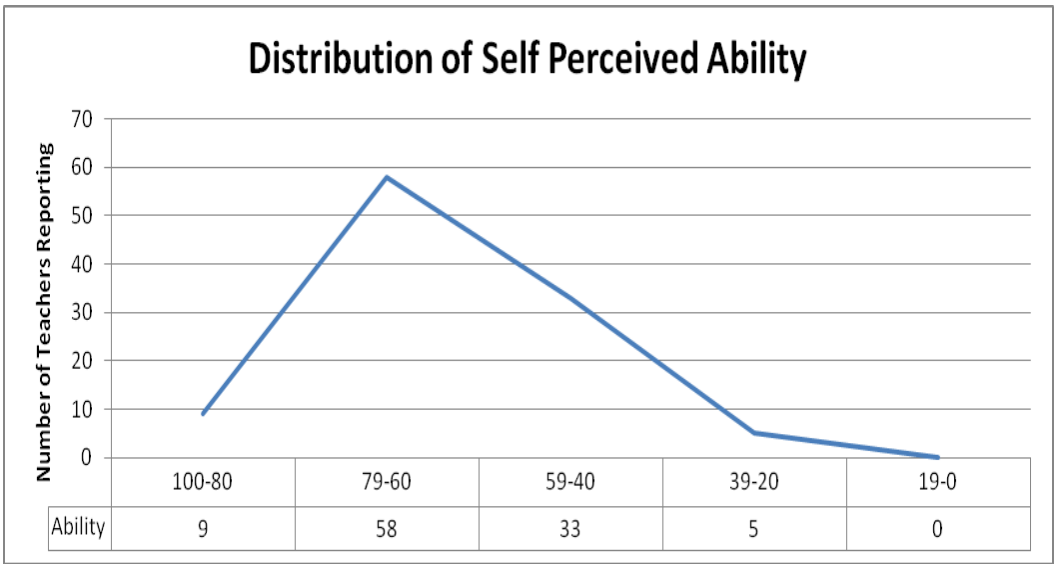

Figure 1. Distribution of Perceived Ability

Five line graphs with four dichotomous questions per graph for a total of 20 questions were used to identify "actual" ability to use data. This was determined by matching the pre-service teacher answers to statistical analysis of trend & effect size as a "true" score. The participants that scored in the very high range scored a total of 17- 20 points while those in the high range scored from 13-16 points. Average participants scored 9-12 points, low ranged from 5-8, and very low scored 4 and below (See Table 4). The distribution of number of pre-service teachers was positively skewed towards very high and high abilities to identify actual abilities to use data (See Figure 2).

Table 4. Summary of Actual Ability Score.

Accuracy in Judgment	Percent (number) of pre-service teachers
Very high (100%-80%))	8% (8)
High (79%-60%)	55%(58)
Average (59%-40%)	33%(35)
Low (39%-20%)	4%(4)
Very low (19%-0%)	0%(0)

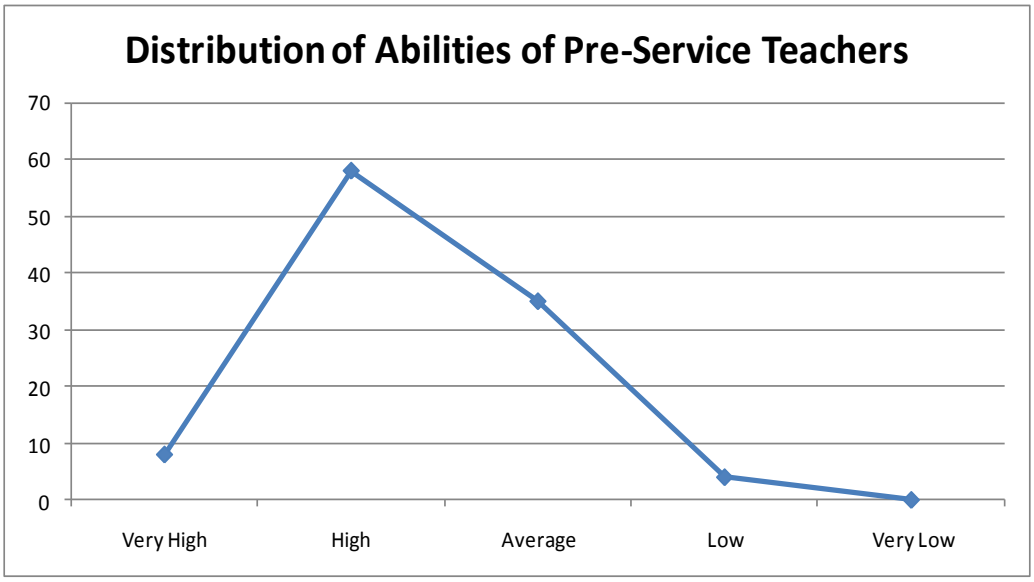

Figure 2. Distribution of Abilities of Pre-Service Teachers

Scatterplots

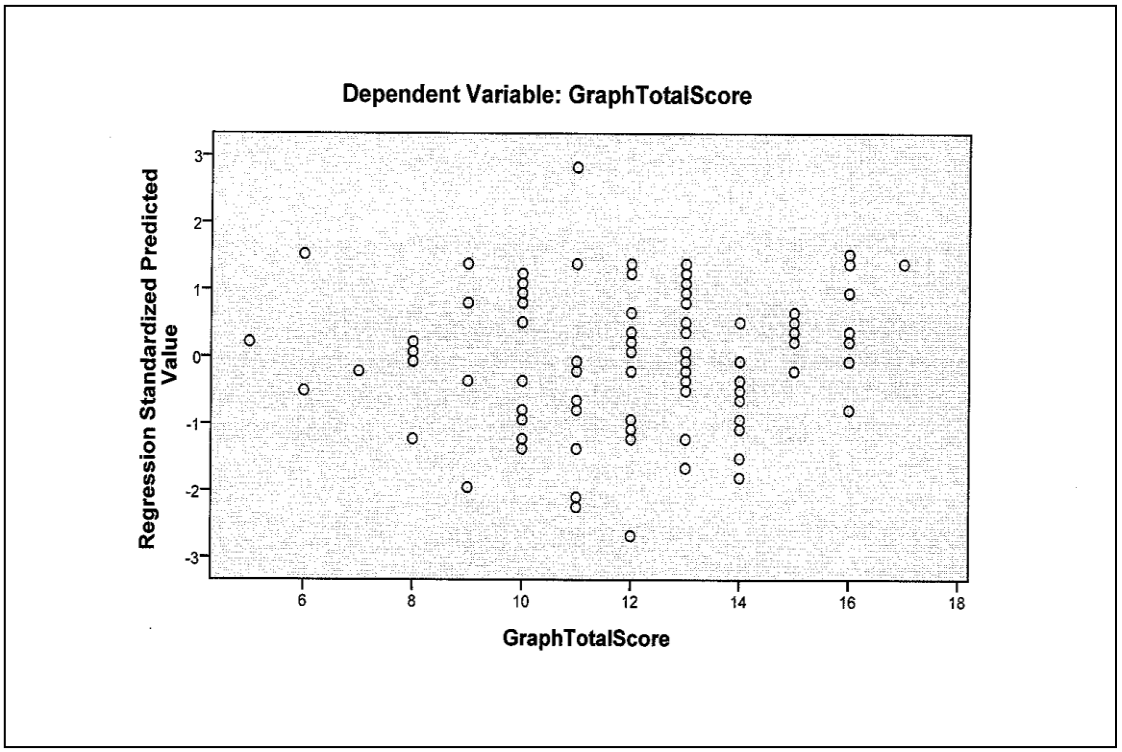

Figure 3 Comparison Between Self-rated Skill and Actual Accuracy.

A Pearson Correlation was calculated yielding a correlation coefficient of .115. This can be interpreted as a very low correlation between participants self perceived abilities and actual abilities with data (See Figure 3). Next, we analyzed using a regression analysis for each of the 3 factors. Factor 1, comfort with data, was statistically significant at the .023 level with ability to use data. Factor 2, self reflective abilities was not statistically significant at the .123 level and factor 3, perceived ability was not statistically significant at the .256 level.

Distribution of courses taken

Table 5. Courses and Frequency of Participants

Number of courses in which 75% of content is related to Special Education	Frequency (percent) of participants
0	*9 (9%)*
1	*19 (18%)*
2-3	*19 (18%)*
4-6	*9 (9%)*
7-12	*28 (27%)*
12 or more	*21 (20%)*

Of the sample of 105 participants, 47% took at least 7 classes consisting of coursework where 75% or more of the content is related to Special Education. It was interesting that

a total of 27%, more than ¼ of the participant pool has taken one or no classes in Special Education (See Table 5). An ANOVA, analysis of variance, test determined that the number of courses taken in special education is statistically significant at the .023 level in determining one's actual ability to use data in decision-making.

CHAPTER IV

SUMMARY AND CONCLUSIONS

This research study set out to find if pre-service teachers knew how to use actual student data to make educational decisions on student placement within schools.

The study reported perceived and actual abilities of pre-service teachers to use actual data. This was studied because of the litigation changes in education recently. Due to the mandate of high accountability of student achievement and a new governmental mandate to use evidence based educational practices, teachers are being asked to use effective data based decisions. The role of teachers has become more complex. Teachers are asked now not only to teach but also to collect data on their classrooms. These teachers roles are ever increasing and becoming part of the overall "what works" teacher knowledge base which is to be used in their classrooms.

The study was conducted after a human subject's review process was completed to obtain IRB approval to use human subjects in the study. Contact was made with 5 university level professors via email and face-to-face meetings. This was done based on a sample of convenience. Of these 5 professors, 3 agreed to allow their undergraduate students to participate in the research study. The principal investigator distributed surveys to classes on the Texas A & M University campus on 3 occasions requesting for the pre-service teachers to participate in the data collection process. Surveys were done anonymously.

After the survey was given, the results were analyzed using a factor analysis with a varimax rotation of 3. This indicated three primary components. Confidence intervals were used on the eigenvalues for a conservative loading of questions on components or "factors". The results indicated 3 factors being comfort with data, level of self-reflection, and perceived ability. These factors were named after reviewing the 12 self-efficacy and opinion questions and naming the constructs. Applying these three components, the three research questions were answered.

Discussion

Pulford, in his 2004 article "I did well, didn't I" believes that it is the unjustified belief that drives us on. "When we think we are doing well at a task, we may persist; [and] feeling like we're doing badly may lead to dropping out and failure" says Pulford. The same may be true of pre-service teacher's perceptions of their own abilities and the effects these perceptions have on actual abilities on teaching.

The first research question asked, "What are the perceived abilities of pre-service teachers working with data, and participant's actual ability to use data identified the following results. 8% (8 participants) were very high in their accuracy in judgment to use data, 55%(58 participants) were in the high range, 33% (35 participants) were average, and 4% (4 participants) landed in the low range. There were no participants whose actual abilities were very low.

Pre-service teachers feel pretty confident in their abilities. In the profession of teaching, having confidence in your decisions made for students is important because it is a requirement of all teachers. No Child Left Behind (NCLB, 2001) mandates that highly qualified teachers are required to make data based decisions in order to select evidence-based interventions for their classrooms (NCLB, 2001).

It is important to note that perceived abilities to be successful is a good quality for teachers to have. In a study by Clark M., called Factors Influencing the Educational Success of Minority Pre-Service Educators, minority students were to examine the factors deemed to be important in their educational success. The study showed that those who regarded themselves as having a strong sense of determination and a "can do" attitude have the fortitude and perseverance required over the long term to set goals and work to succeed at them. Along with these characteristics, the study also found a sense of optimism, hope, and future in these students with "can do" attitudes. In the literature, this characteristic is known as future time perspective, which is a person's conceptualization and connection to future endeavors (Shell & Husman, 2001). The personality trait of having a high since of perceived ability can influence ones goals over time. An important component of achievement motivation is ones sense of being able to complete the task (Eccels et al, 1983; Harter 1990). In other words, teachers who perceive themselves, as good data analyzers are more likely to have specific goals set for their students. The teachers who feel confident in their abilities will more likely take data

more often to see what is working with their students and to see what is not working. "Perhaps, our own estimates about our performance are so biased by pre-existing self views that they just serve to create a self fulfilling prophesy" (Pulford, 2004) whether that self concept be good or bad.

A key component of effective teaching is the teacher's ability to process information or data and make decisions (Gray 2006; Protheroe, 2001). The second research question asked, "What are the actual abilities of pre-service teachers working with data?" The analysis returned the results stating that participant's actual ability to use data identified similar results with perceived ability. 8% (8 participants) were very high in their accuracy in judgment to use data, 55% (58 participants) were in the high range, 33% (35 participants) were average, and 4% (4 participants) landed in the low range. There were no participants whose actual abilities were very low.

Actual ability in decision-making is important because this directly influences our students. Teacher's abilities create direct links to educational student success and or failure. Parker (1984), in the article *Developing Teachers Decision-Making*, argues that teacher decision making is likely to enhance teacher's ability to bring about student learning. In other words, if teachers have good decision-making they have a better chance of bringing about student learning.

The actual abilities of teachers are important, especially in working with vulnerable or special populations. Decisions in fields such as nursing can be seen as life or death, and so can those decisions made in education. The decisions made about student success or lack thereof by teachers creates a domino effect on the placement and perception of that student. It seems to be the trail that follows them endlessly. In this respect, teachers should then consider taking individuals decisions more seriously to avoid the possible detriments and set backs from occurring.

The third question asked, "Is there a correlation between perceived ability and actual ability?" Surprisingly, there is a very low correlation between perceived actual abilities in pre-service teachers.

Other studies have found that teachers perceive their knowledge levels to be much higher than their actual ability. For instance, in a study of pre-service teachers perceived and actual knowledge of early literacy skills, Cunningham (2004) found that teachers perceived their knowledge as high, but demonstrated much lower levels of knowledge. Jurica and Holmes (2008) found that pre-service physical education teachers overestimated personal computer skills. Furthermore, research by Pulford (2004) shows that there is a correlation between perceived and actual abilities being positive and significant but fairly low. The same held consistent in this study.

The point is that expert decision-making takes time, it is a process of rule assessment,

and it is a process of considering the options. Experience is not enough. To imagine that experts are better by some virtue of `better' rationality is to miss the point that expertise is taught and improved by experimentation (Clark, Gordon 2007).

Since we all know that the rate of change in teacher preparation programs will not and cannot happen overnight, recent graduated of teacher preparation programs should remember the concepts they have been taught in their preparation programs such as the importance of collaboration. Rosenberg, Oshea, & Oshea 1998 recommend that exposure to collaboration experiences can enable pre-service teachers to make more informed decisions about how and when to use collaborative teaching strategies to meet the needs of all students. In other words, it is recommended to make the most of your resources within your school within the first few years of being a new teacher. Collaborate with other seasoned teachers on your high stakes decisions to ensure that the correct decision is being made for each individual student.

Limitations

This study took only the useable surveys, those that were completed in their entirety to run statistical analysis on. Surveys in which participants did not fill out certain answers were eliminated therefore decreasing the overall sample size of the study.

The study was done with a rather small sample size of undergraduate students at Texas A&M University. Since students were all enrolled at the same university, the views and coursework of participants surveyed may or may not reflect the overall moral/value system of the university and given course work. It cannot be said that all university level students across the board show no correlation between actual and perceived abilities, although the results of this study assume such.

The gender ratio results show a small amount of men participants compared to women participants in the study. Therefore, the views may not completely reflect how all pre-service teachers can use data, but rather how predominately women can or cannot use data.

The number of classes that each student took where 75% or more of the content was related to SPED was not clearly identified or really looked into when the results were given. This in fact may be a factor of how well a pre-service teacher can use data. The survey did not specifically ask about classes where instruction on using data was taught. The types of classes that these participants have taken which contain instruction on how to make decisions with data could have helped the study have a clearer understanding of whether or not it was the university course that was causing the limitation or not.

Implications

So what does it mean that pre-service teachers are unsure if they know how to use data? This means that there is DANGER in the education field. Teachers who may think they are good at reading data in fact are not, and those teachers who are great at reading data do not realize their own strengths. This would less dangerous is situations that have to do with low stake decisions such as changing curriculum, re-teaching a particular concept, a teacher made assessment, etc. When this becomes more dangerous is when you are using data to make high stakes decisions such as the possibility of retention, eligibility, or placement change with students. Pre Service teachers should remember that the higher the stakes are, the more important it is to be certain that the data is being read correctly for that particular assessment. This becomes a problem because the decisions that these teachers are making are affecting students daily in our schools as well as in their educational placements. Future researchers may consider looking at the factors contributing to perceived and actual abilities of teachers. With this they could possibly redesign and reformat teacher preparation programs to foster such constructs.

Conclusions

Previous research states the importance of data based decision making but not directly relating to pre-service teachers. Pre-service teacher preparation programs deem it very important for pre-service teachers to understand data based decision- making. The

reason behind this is that these data based decisions help teachers to make informed decisions to guide their instruction for student's specific needs. This individualized instruction will help close the achievement gap. Reading data is important because it helps teachers to identify what interventions have been successful and which ones should be discontinued. Data can even help a teacher to self reflect on her own teaching and assess whether she or he should continue to present material in the same way, or if a new way of presenting the material would be more effective.

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APPENDIX A

Participant Demographic Information

1. What is your current student status?
    a. U4
    b. U3
    c. U2
2. How many courses have you taken where 75% or more of the content was related to special education or students with disabilities?
    a. 0
    b. 1
    c. 2-3
    d. 4-6
    e. 7-12
    f. More than 12
3. Circle all that apply which best describe your school experience related to students with disabilities
    a. I have or am a substitute teacher in general education (some students with disabilities included).
    b. I have been or am a substitute in special education.
    c. I have observed in general education classrooms.
    d. I have observed in special education classrooms.
    e. I have done a practicum or methods experience in a general education room.
    f. I have done a practicum or methods experience in a special education room.
    g. I am a student teacher.
    h. I am a general education certified teacher.
    i. I am a special education certified teacher.
4. Gender: M F
5. Ethnicity:
    a. Caucasian (non Hispanic)
    b. African American
    c. Native American/Pacific Islander
    d. Hispanic
    e. Asian

f. Other/I do not wish to disclose

6. My primary experience is at the _____ level:
    a. Early Childhood (pre K- K),
    b. Elementary (1^{st} -5^{th}),
    c. Middle School, (6^{th} -8^{th})
    d. High School (9^{th} – 12^{th})

Making weighty decisions: Do preservice teachers understand the impact of data driven decisions?

Teachers are expected to make judgments about student academic and behavioral progress in classrooms. Pre service teacher may or may not have adequate training or experience to make these types of judgments. This study is a survey of your self-evaluation about data driven decision making.
Answer each question to the best of your ability.

Self Evaluation Questions

	5 high / agree				1 low /disagree
1. Evaluate your ability to judge student progress using data.	5	4	3	2	1
2. Evaluate your ability to make decisions about student progress in general.	5	4	3	2	1
3. Evaluate your comfort level using data.	5	4	3	2	1
4. Evaluate your comfort level in evaluating students in general.	5	4	3	2	1
5. My ability to read graphs is…	5	4	3	2	1
6. I consider myself "a numbers person".	5	4	3	2	1
7. I think teaching is something you are natural at or not.	5	4	3	2	1
8. I trust my own "sense" of how a student is doing.	5	4	3	2	1
9. I trust "numbers" or data more than my own "sense" or judgment.	5	4	3	2	1
10. I feel comfortable taking data.	5	4	3	2	1
11. I use data now when I work with students.	5	4	3	2	1
12. I know what types of data to take and how to take it.	5	4	3	2	1
13. I know how to use data to make decisions.	5	4	3	2	1

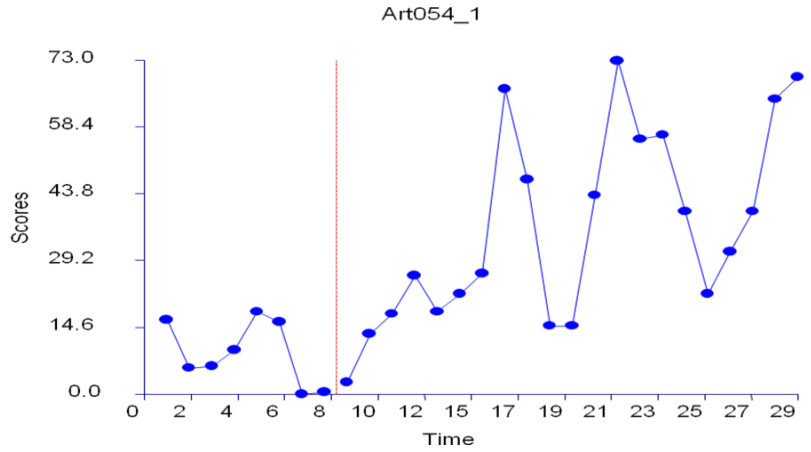
Scenario Evaluation Questions

Directions: Please look each graph provided and answer questions to the best of your ability. Do not go back or change previous answers in the self evaluation section.

You are being asked to make decisions with data. You will make four decisions for each graph. First, did change occur from one phase to the next? Second, how large or small was the change if it occurred? Third, is there a trend in the intervention data (intervention is to the right of the vertical line)? Fourth, would you "vote" to continue treatment or discontinue treatment (treatment meaning whatever instruction or practice is being used)?

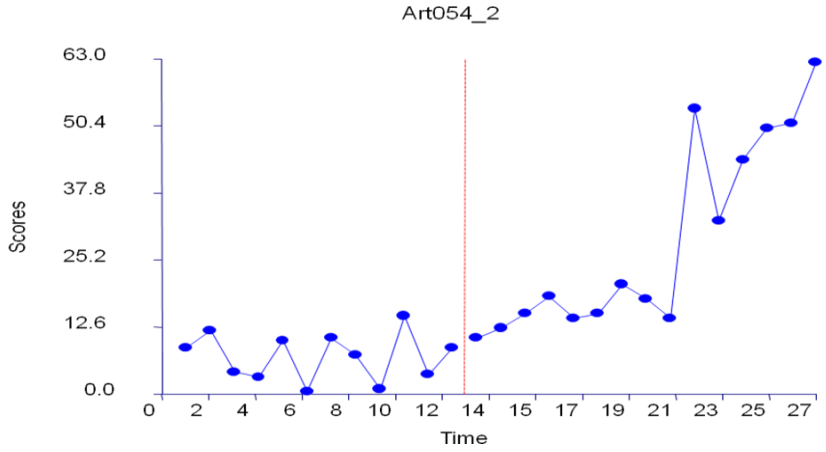
Graph 1.

Frequency of hitting



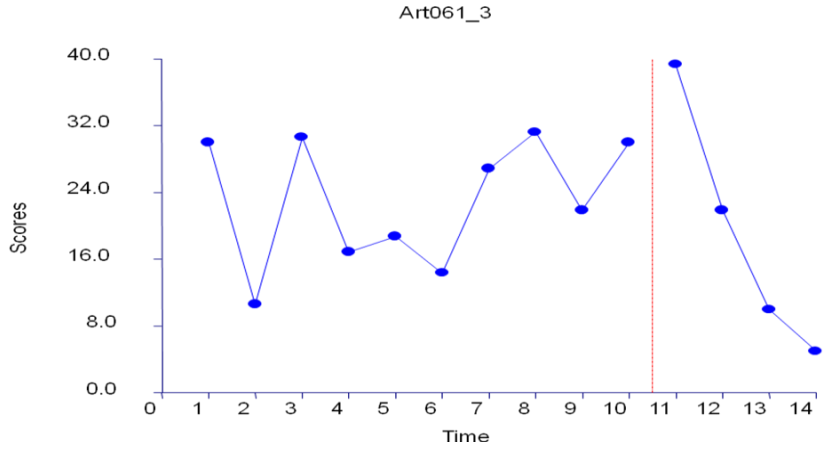
1. Did change occur from one phase to the next? (yes, no)
2. How large or small was the change if it occurred? (small, medium, large)
3. Is there a trend in the intervention phase? (yes, no)
4. Would you "vote" to continue treatment or discontinue treatment? (continue, discontinue)

Graph 2.
Level of On Task behavior.



1. Did change occur from one phase to the next? (yes, no)
2. How large or small was the change if it occurred? (small, medium, large)
3. Is there a trend in the intervention phase? (yes, no)
4. Would you "vote" to continue treatment or discontinue treatment? (continue, discontinue)

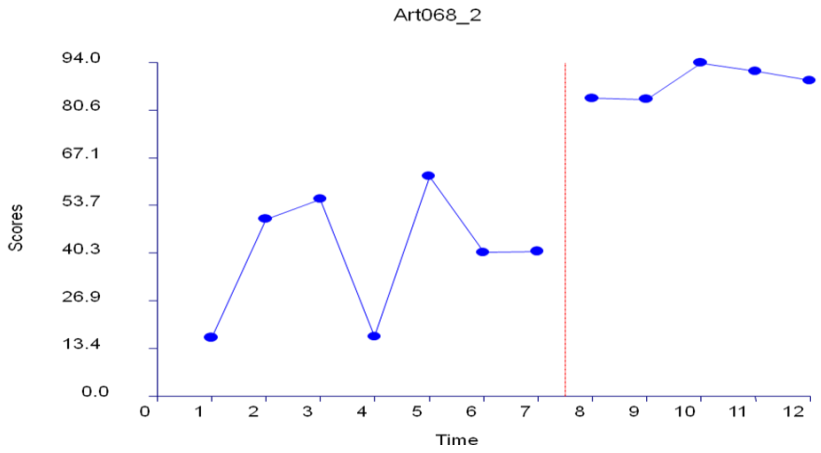
Graph 3.
Duration of tantruming



1. Did change occur from one phase to the next? (yes, no)
2. How large or small was the change if it occurred? (small, medium, large)
3. Is there a trend in the intervention phase? (yes, no)
4. Would you "vote" to continue treatment or discontinue treatment? (continue, discontinue)

Graph 4.

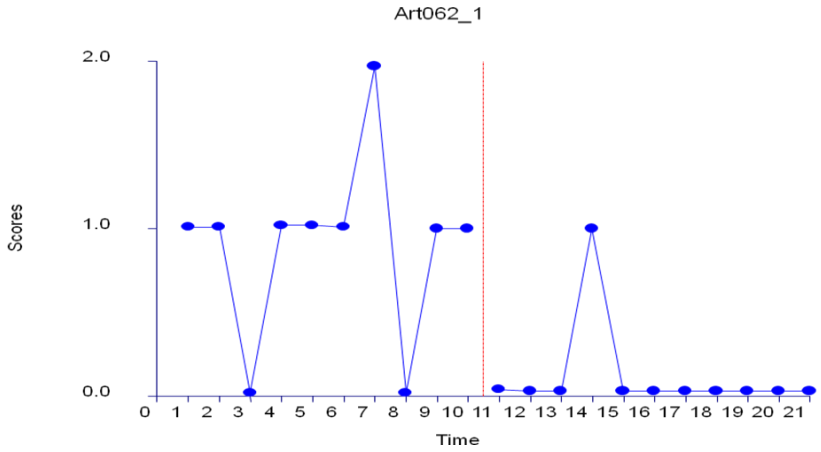
Raises hand and waits for teacher help



1. Did change occur from one phase to the next? (yes, no)
2. How large or small was the change if it occurred? (small, medium, large)
3. Is there a trend in the intervention phase? (yes, no)
4. Would you "vote" to continue treatment or discontinue treatment? (continue, discontinue)

Graph 5.

Dirt clod throwing on playground



1. Did change occur from one phase to the next? (yes, no)
2. How large or small was the change if it occurred? (small, medium, large)
3. Is there a trend in the intervention phase? (yes, no)
4. Would you "vote" to continue treatment or discontinue treatment? (continue, discontinue)

CONTACT INFORMATION

Name:	Lauren Elizabeth Williams
Professional Address:	c/o Dr. Kimberly Vannest Department of Educational Psychology MS 4225 Texas A&M University College Station, TX 77843
Email Address:	laurenwilliams@tamu.edu
Education:	B.S., Interdisciplinary Studies, Texas A&M University, May 2010 Undergraduate Research Scholar